

Listing of Claims:

1. (Currently amended) In a machine tool in which a spindle housing supporting a specifically directed spindle for rotation ~~alone~~ is supported for ~~parallel~~ motion in ~~orthogonal~~ ~~three-axis directions XYZ~~ by a numerical control mechanism, in determining a phase of a work to be feed-rotated around a specific axis, a work phase determination method for machine tools comprising:

fixing a reference block to the spindle housing of the spindle, said reference block comprising a first plane face with a reference block fixed to the spindle housing,

installing an NC table of the numerical control mechanism on a work support-feeding device,

feed-rotating the work around the specific axis, and

correcting a rotation angle of the work in accordance with a rotation angle of the NC table at a time of an abutment between abutting a phase reference section of the work and against the reference block, and

finding the amount of feed-rotation of the work at the time of this abutment.

Claims 2 and 3 (Cancelled)

4. (Currently amended) In a machine tool in which a spindle housing supporting a specifically directed spindle for rotation ~~alone~~ is supported for ~~parallel~~ motion in ~~orthogonal~~ ~~three-axis directions XYZ~~ by a numerical control mechanism, a work phase determination device

structure for machine tools comprising:

a reference block fixed below and in vertical alignment with the spindle, the reference block having a first plane face perpendicular to a direction of the spindle and a second plane face parallel to both the direction of the spindle and the specific axis; fixed to the spindle housing so as to abut a phase reference section of the work feed rotated around a specific axis by the numerical control mechanism

a work support-feeding device comprising an intermediate table having a top face with opposite ends, a work driving table fixed on one end of the top face of the intermediate table, and a center push table fixed on the other end thereof, said work driving table having an NC table and a table main body fixed on the intermediate table;

a chuck portion, supported on the table main body, rotatively driven around a specific axis in an X-axis direction by the NC table; and

a drive center supported on the table main body and positioned on the specific axis, the drive center supporting a rotation center of an end of a work grasped by the chuck portion, the work having a phase reference section,

wherein, in feed-rotating the work around the specific axis, a rotation angle of the work is corrected in accordance with a rotation angle of the NC table at a time of an abutment between the phase reference section of the work and the reference block.

Claims 5 and 6 (Cancelled)

7. (New) A work phase determination method for machine tools as set forth in claim 1,

wherein said reference block is arranged below and in vertical alignment with the spindle, at the lowest position of the spindle housing.

8. (New) A work phase determination method for machine tools as set forth in claim 1, wherein said first plane face is perpendicular to a first direction of the spindle, said reference block has a second plane face parallel to both the direction of the spindle and the specific axis, and the work is feed rotated in either a first direction or a second, opposite direction around the specific axis to abut the phase reference section of the work against either or each of the first plane face and the second plane face, so as to find the amount of feed-rotation of the work at the time of the abutment.

9. (New) A work phase determination method for machine tools as set forth in claim 8, wherein the work is feed rotated in both the first direction and the second, opposite direction around the specific axis to abut the phase reference section of the work against each of the first plane face and the second plane face, so as to find the amount of feed-rotation of the work at the time of the abutment.

10. (New) A work phase determination method for machine tools as set forth in claim 1, wherein the rotation angle of the work is corrected in accordance with a rotation angle of the NC table at a time of an abutment between a phase reference section of the work and said first plane face of the reference block.

11. (New) A work phase determination method for machine tools as set forth in claim 1, wherein said spindle housing is supported for parallel motion in orthogonal three-axis directions XYZ by the numerical control mechanism.

12. (New) A work phase determination device as set forth in claim 4, wherein said spindle housing is supported for parallel motion in orthogonal three-axis directions XYZ by the numerical control mechanism.

13. (New) A work phase determination device as set forth in claim 4, wherein the rotation angle of the work is corrected in accordance with a rotation angle of the NC table at a time of an abutment between a phase reference section of the work and said first plane face of the reference block.